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How to monitor the Ocean?

Why « monitoring the ocean from space »?

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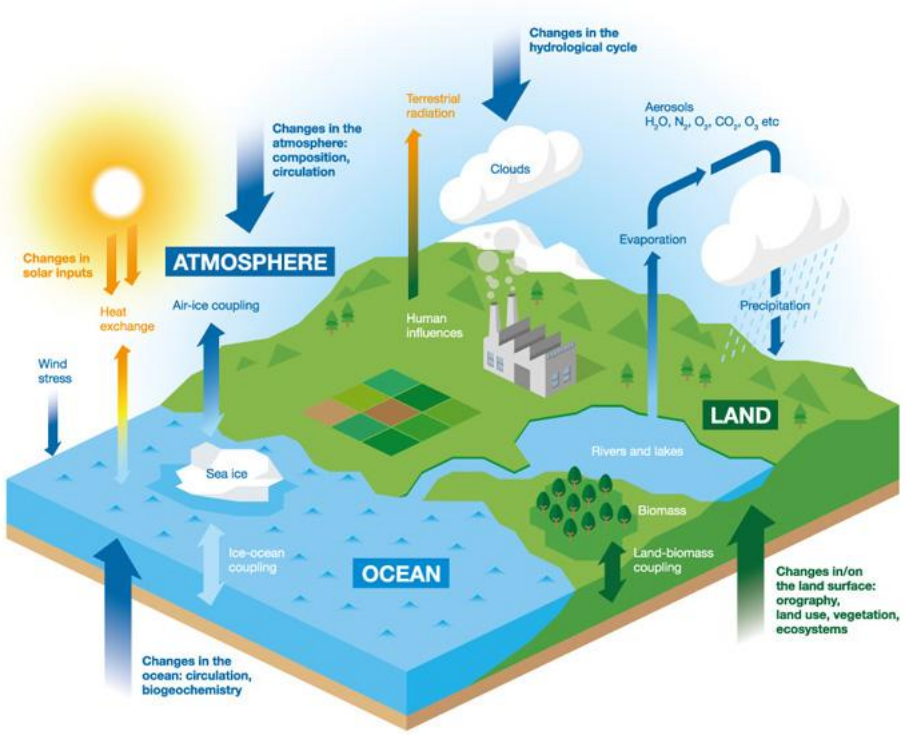
Sorbonne Université/CNRS

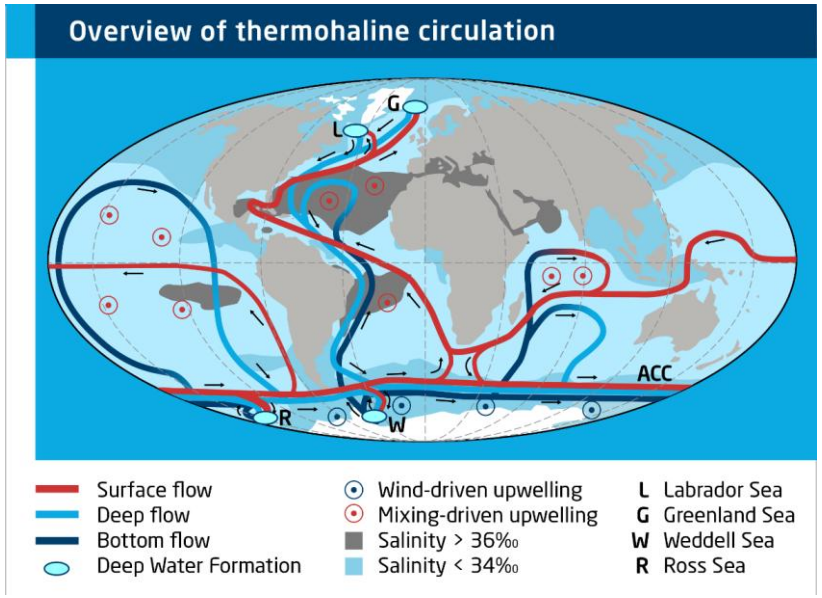
Space observation provides global ocean monitoring over a wide variety of scales and parameters

Improve Ocean Knowledge

A complex machine interacting with other components of the Earth system



Which transports sea water properties over hundreds years, across ocean basins, and from the ocean surface to depth (several km)



Source marine portal

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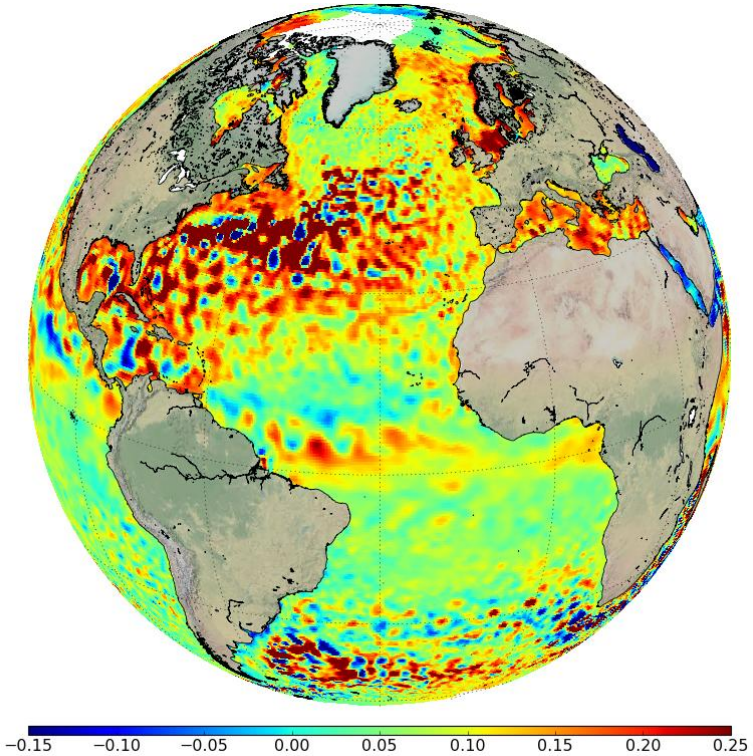
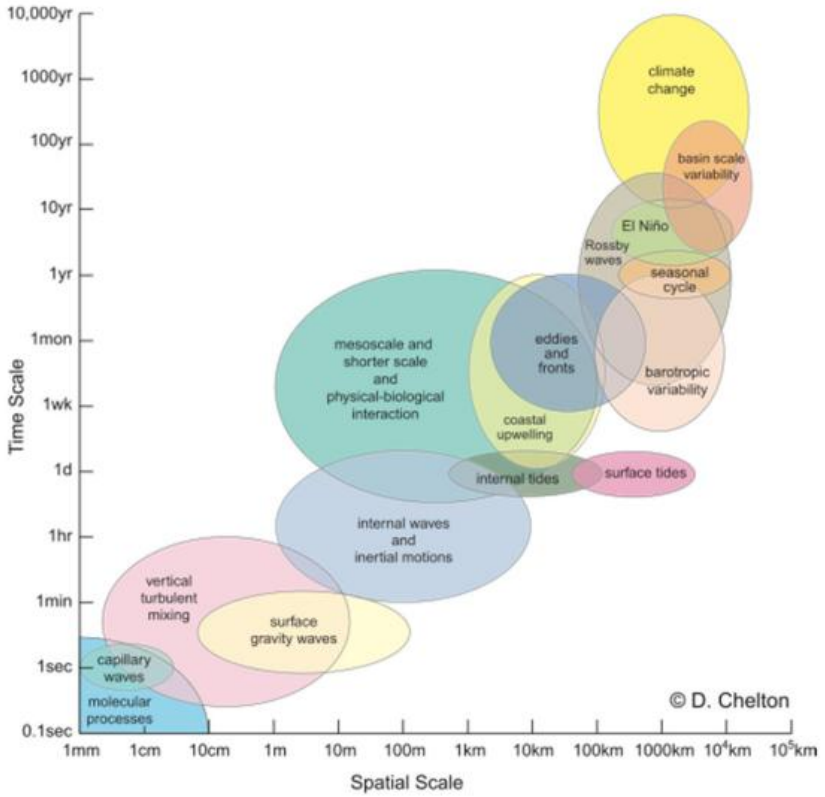
Improve Ocean Knowledge

A vast domain, difficult to access, (average depth of 3800 m),



Sea level anomaly (credit Copernicus Climate Change Service ECMWF)

Processes (physics, biology, chemistry) covering a very wide range of spatial and temporal scales.



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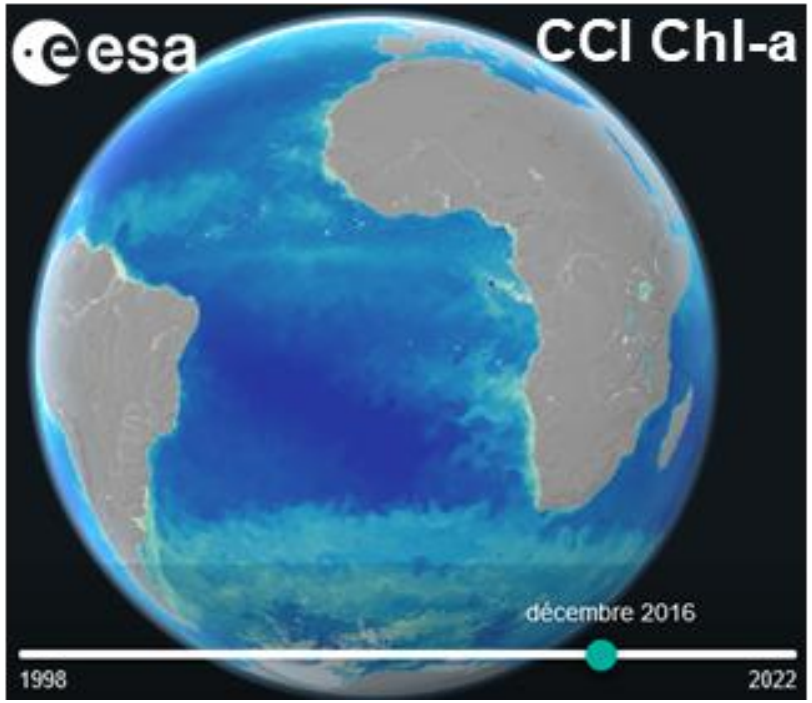
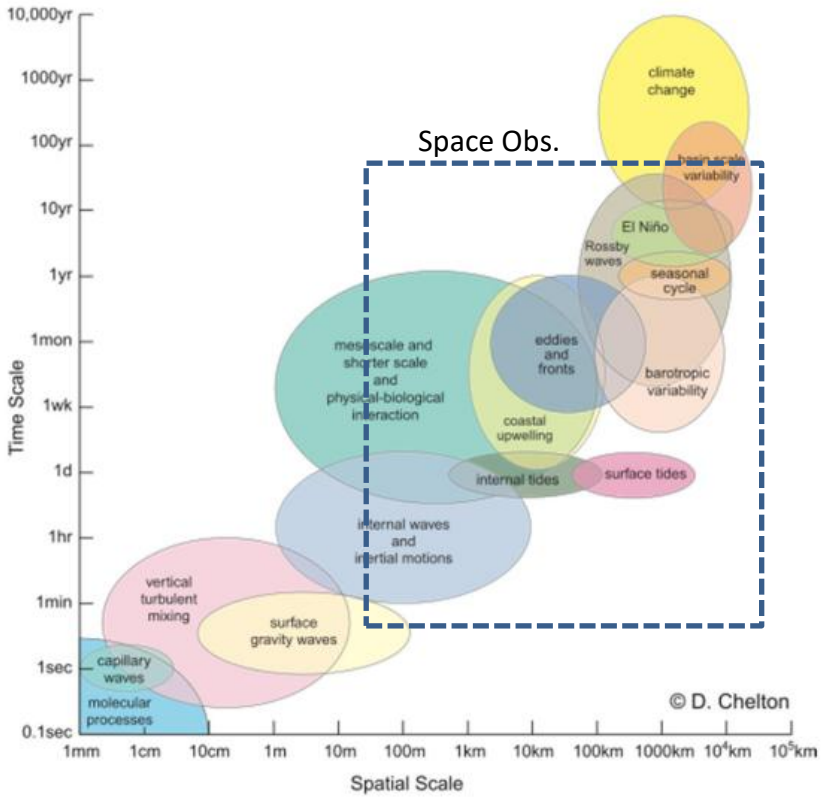


Chlorophyll a

Processes (physics, biology, chemistry) covering a very wide range of spatial and temporal scales.



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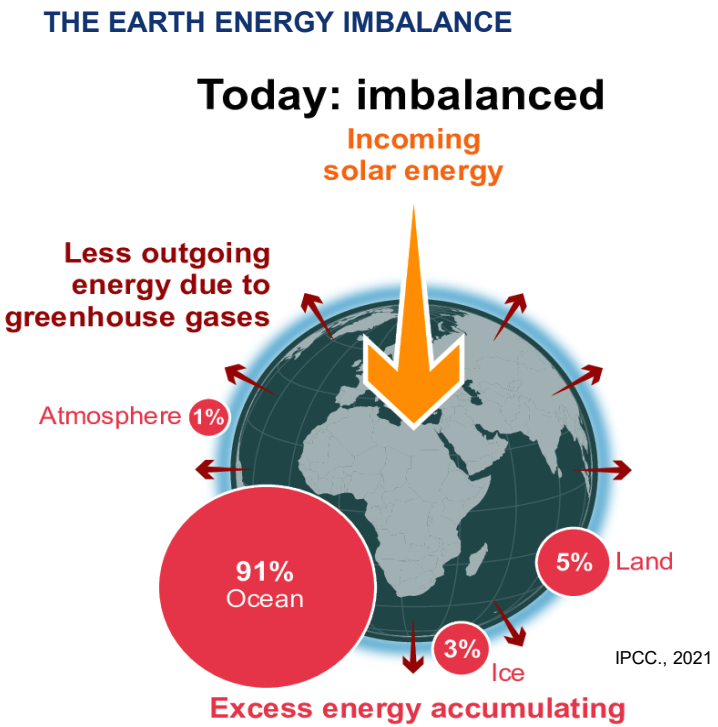
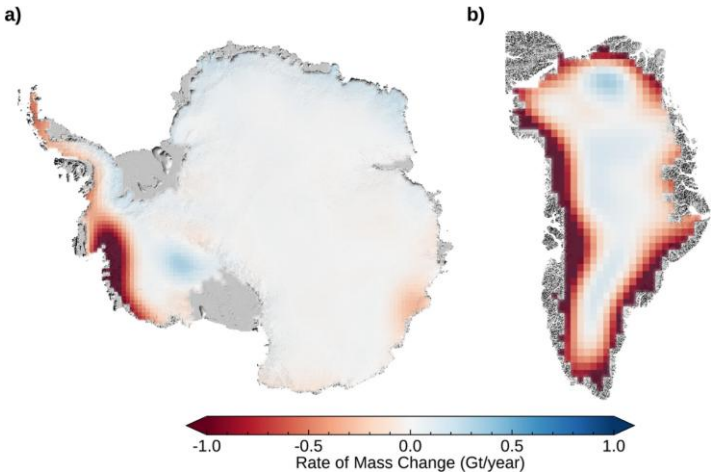
The Ocean: Societal Challenge

Major role of the Ocean in climate (heat, CO2, water cycle)

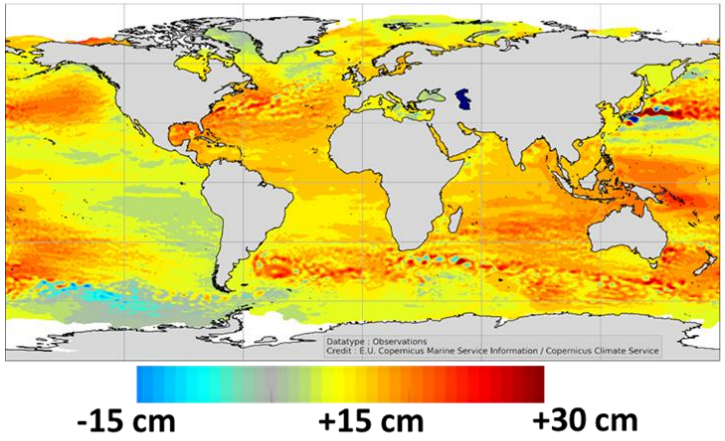


=> Increase of ocean temperature

Mass loss of Ice sheets



Sea level increase since 1993



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The Ocean: Societal Challenge

Essential source of food and energy, contributes to the development of the world economy

Under pressure (storms, marine heat waves) => impact on human activities and marine biodiversity

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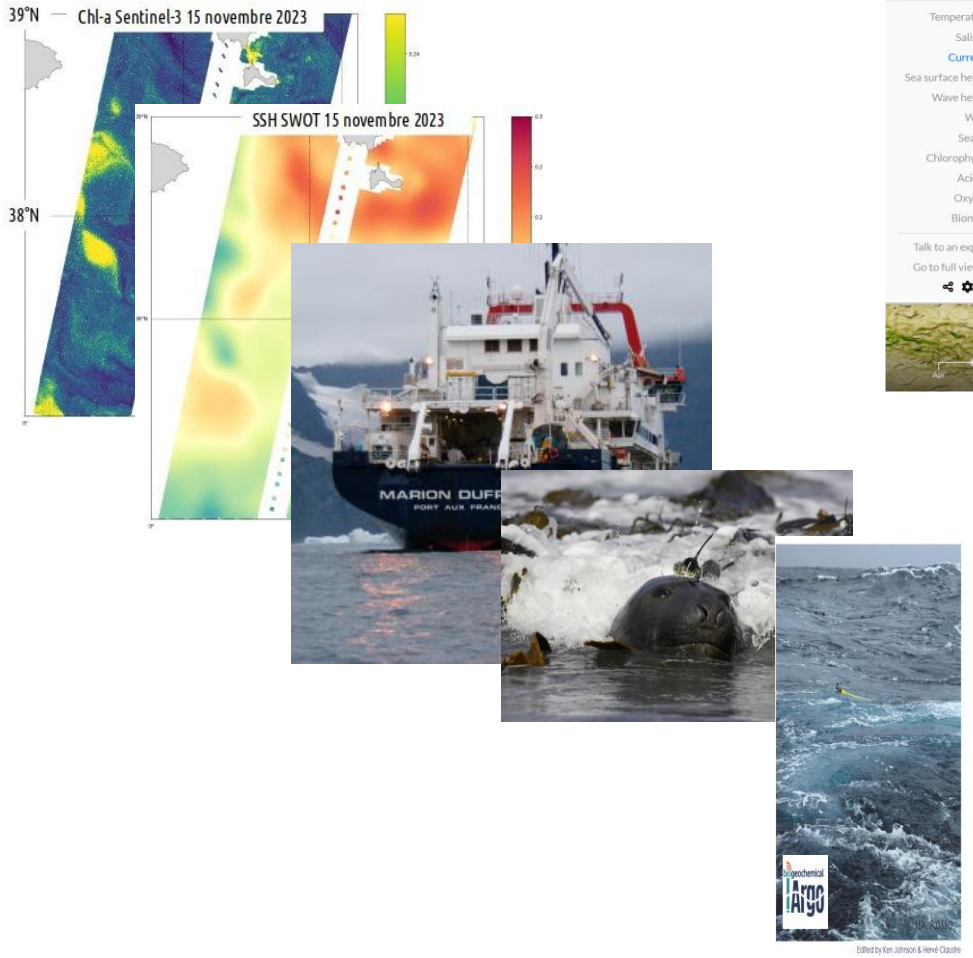
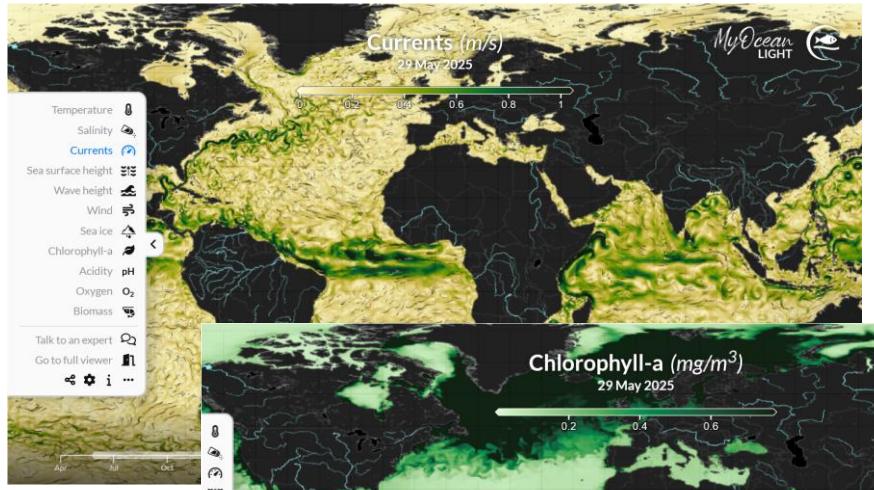
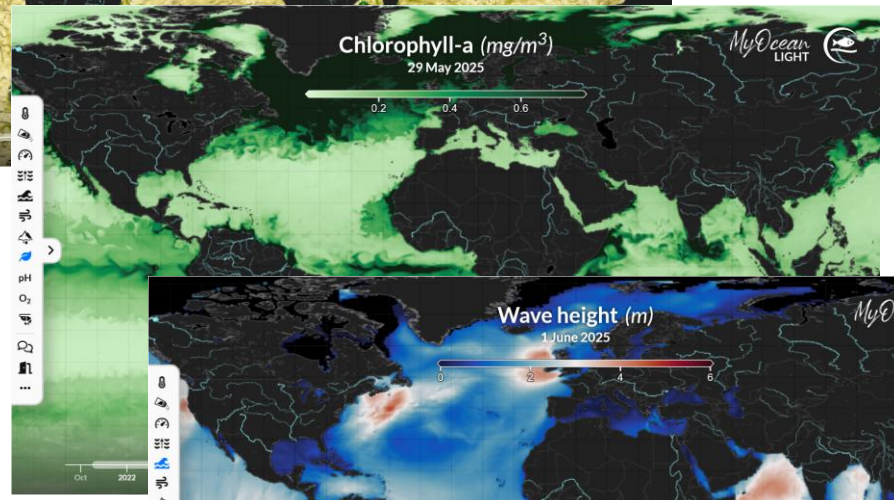
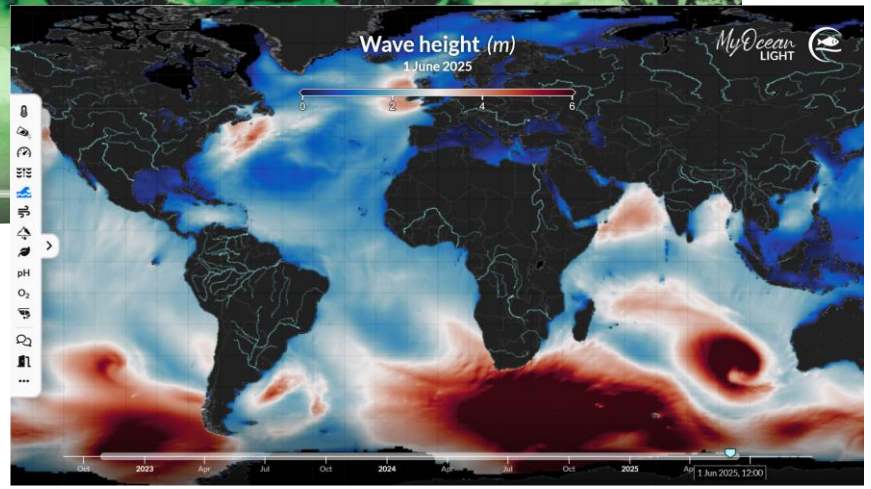
Ocean analysis and forecast

Ocean model fed with Space observations (synopticity) + in situ observations (e.g. subsurface)









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Agenda

Why “monitoring the ocean from space” Jacqueline Boutin (LOCEAN) - 10mn

1. **Monitoring from space to better understand the ocean (1h40)**
   a. Sea Level rise, Anny Cazenave (Legos) - 15mn
   b. Wave & wind, Lotfi Aouf (Meteo France) - 15mn
   c. Currents MH Rio (ESA) - 15mn
   d. Salinity Jacqueline Boutin (LOCEAN), - 15mn
   e. Marine BioGeochemistry, Hubert Loisel (LOG) - 15mn
   f. Monitoring the Coasts, Imen Turki (Univ Rouen) - 15mn
   g. Questions from audience - 10mn
2. **Applications and social benefit (1h10)**
   a. Transforming EO data for operational applications, Estelle Obligis (Eumetsat) - 15mn
   b. Ocean applications at ESA, Marie Helene Rio, ESA - 15mn
   c. Marine Heatwaves, Estelle Obligis (Eumetsat) - 15mn
   d. Living with rising seas, Svetlana Jevrejeva (NOC) -15mn
   e. Questions from audience 10mn

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